



Alfa Laval sludge handling equipment boosts wastewater treatment capacity

Prosna Municipal Wastewater Treatment Plant, Kalisz, Poland

Case Story



The Municipality of Prosna has used Alfa Laval drum thickeners and spiral heat exchangers at its Kalisz municipal wastewater treatment plant for more than 10 years. Needing to increase capacity they also invested in an Alfa Laval AS-H Belt Thickener in 2013 that meets all the company's requirements regarding capacity, space and necessary technological parameters.

Drum thickeners and spiral heat exchangers

Prosna Municipality entered a cooperation with Alfa Laval in 2000 when they installed in their Kalisz plant two Alfa Laval ALDRUM Drum Thickeners for the thickening of biological secondary sludge. They also installed one compact, highly efficient, self-cleaning Alfa Laval spiral heat exchanger for heating the sludge in the digester tank after the thickening and before dewatering.

During the following years, the equipment operated continuously without problems. However, in 2013 the drum thickeners could no longer keep up with the increasing volume of sludge from the 30,000 m³/d plant. Therefore Prosna consulted Alfa Laval and other suppliers looking for a solution.

Low polymer consumption and small footprint critical

The customer emphasized two critical selection criteria for the new thickening equipment. They wanted low polymer consumption and a unit that would fit into the existing building. As there was not enough space to install a third ALDRUM thickener, Alfa Laval offered Prosna a 1.5 metre wide Alfa Laval AS-H Belt Thickener, which would replace one of the two ALDRUM units.

Shorter and wider than a drum thickener

It was possible to meet the limited space requirements because the belt thickener is shorter and wider than the drum thickener and has a smaller footprint. The belt thickener works on the principle of separating liquid from solids by gravity drainage through a porous filter belt. The drum thickener is basically a belt thickener that has been rolled up, where the slowly rotating drum filter separates the sludge, which remains in the drum, from the water phase that passes through the filter cloth. Both types provide gentle, efficient sludge thickening with high recovery, low power consumption and minimum operator intervention.

It was also possible to save space at the Kalisz plant by using a mixing valve that made it unnecessary to have a separate flocculation chamber and mixer. In terms of performance, the belt thickener has a consistent solids load across the filtration area which maximizes filtration throughput.

Prosna followed Alfa Laval's recommendation and chose the AS-H Belt Thickener. Besides fulfilling their main criteria it was also valued that they already had good contact with Alfa Laval and its local service center in Łódź with a good customer support team.

Fast installation

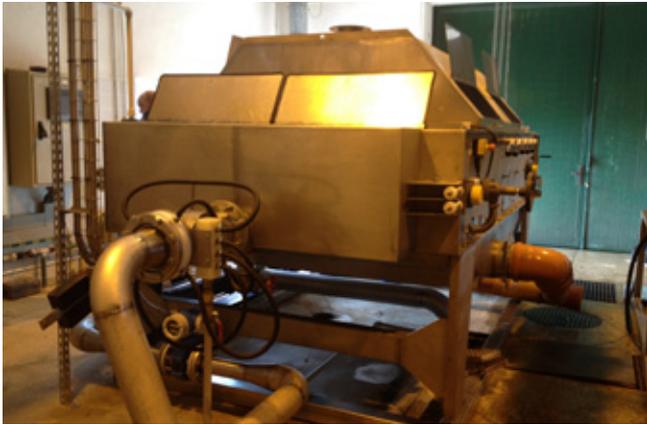
Alfa Laval's local sales office in Poland took care of the customer. The scope of supply included dismantling one of the two old drum thickeners, assembly of the new belt thickener with new inlet sludge pump and polymer pump, plus piping, control panel and start-up. The entire job was completed successfully in just seven days as required by the customer.

Satisfactory performance

The new Alfa Laval AS-H Belt Thickener has now been running for more than a year to the full satisfaction of Prosna. Their lab results confirm that the machine continues to fulfil all their technological parameters, such as a nominal design flow of 45 m³/h, a polymer consumption of 2-3 kg/t dry solids, a thickened sludge dry solids content of >6%, and an effluent quality of 200 mg/l suspended solids.

Prosna recommends Alfa Laval

Prosna's Managing Director Jerzy Czuba and Operations Manager Slawomir Mickiewicz: "Delivery and commissioning of the new AS-H Belt Thickener were completed on time. We express our satisfaction with the cooperation with Alfa Laval and recommend the company as a good counterpart to perform equipment supply of sewage sludge treatment."



The new gravity based Alfa Laval AS-H Belt Thickener.



The existing rotating Alfa Laval Drum Thickener (left) and the new Alfa Laval AS-H Belt Thickener.



Prosna uses their two Alfa Laval Spiral Heat Exchangers for digester heating.

Alfa Laval reserves the right to change specifications without prior notification.

How to contact Alfa Laval

Up-to-date Alfa Laval contact details for all countries are always available on our website at www.alfalaval.com